

CLAIMS

1. Method of obtaining nanoparticles for the administration of at least one active ingredient, with a 5 diameter less than 1 m, characterised in that it comprises the steps of:
  - a) preparing an aqueous solution of a hyaluronic acid salt;
  - b) preparing an aqueous solution of a cationic polymer;
  - 10 c) adding a polyanionic salt to the solution of the hyaluronic acid salt;
  - d) stir-mixing the solutions resulting from steps b) and c), spontaneously obtaining the nanoparticles, wherein the active ingredient is dissolved in one of 15 resulting solutions a), b) or c) or in the suspension of nanoparticles obtained in step d) to be absorbed in the nanoparticles.
2. Method according to claim 1, characterised in that 20 the hyaluronic acid salt solution is prepared at a concentration of between 0.50 and 5 mg/mL.
3. Method according to any of claims 1 and 2, characterised in that the cationic polymer solution is 25 prepared at a concentration of between 0.5 and 5 mg/mL.
4. Method according to any of claims 1 to 3, characterised in that the anionic salt is added at a concentration of between 0.25 and 1.00 mg/mL.
- 30 5. Method according to any of claims 1 to 4, characterised in that the active ingredient is a macromolecule.
- 35 6. Method according to claim 5, characterised in that,

if the macromolecule has a lypophilic nature, said macromolecule is dissolved, before incorporating it in one of solutions a) or b), in a mixture of water and a water-miscible organic solvent, so that the concentration of the 5 organic solvent in the end solution is less than 10% by weight.

7. Method according to claim 6, characterised in that the organic solvent is acetronitrile.

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8. Method according to any of claims 1 to 7, characterised in that the hyaluronic acid salt is sodium salt.

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9. Method according to any of claims 1 to 8, characterised in that the cationic polymer is chitosan.

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10. Method according to any of claims 1 to 9, characterised in that the cationic polymer is collagen or gelatine.

11. Method according to any of claims 1 to 10, characterised in that the polyanionic salt is sodium tripoliphosphate.

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12. Method according to any of claims 1 to 11, characterised in that the proportion of hyaluronic acid:cationic polymer:polyanionic salt in the end solution is between 1:0.5:0.1 and 1:10:2.

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13. Method according to any of claims 1 to 11, characterised in that the proportion of hyaluronic acid:cationic polymer: polyanionic salt in the end solution is between 1:1:0.15 and 1:10:1.5.

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14. Method according to any of claims 1 to 13, characterised in that it comprises an additional step e), after step d), of lyophilising the nanoparticles obtained in the presence of reduced quantities of sugars.

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15. Method according to claim 14, characterised in that it comprises an additional step f), after step e), of regenerating the lyophilised nanoparticles.

10 16. Nanoparticles for the administration of an active ingredient, which can be obtained by any of claims 1 to 15..

15 17. Nanoparticles for the administration of an active ingredient, characterised in that it comprises a hyaluronic acid salt, a cationic polymer, a polyanionic salt and an active ingredient.

18. Nanoparticles according to claim 17, characterised 20 in that the active ingredient is a macromolecule.

19. Nanoparticles according to either of claims 17 and 18, characterised in that the hyaluronic acid salt is sodium salt.

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20. Nanoparticles according to any of claims 17 to 19, characterised in that the cationic polymer is chitosan.

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21. Nanoparticles according to any of claims 17 to 19 characterised in that the cationic polymer is collagen or gelatine.

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22. Nanoparticles according to any of claims 17 to 21, characterised in that the polyanionic salt is sodium triphosphate.

23. Pharmaceutical or cosmetic composition, characterised in that it comprises nanoparticles according to claims 16 to 22.

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24. Use of nanoparticles according to any of claims 16 to 22 in the preparation of a pharmaceutical composition for the topical or parenteral administration or on mucous membranes.

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There follow 8 sheets of drawings numbered correlative.